# X15642.ST25.txt SEQUENCE LISTING

```
<110> Eli Lilly and Company
<120> MODIFIED GLUCAGON-LIKE PEPTIDE-1 ANALOGS
<130> X-15642
<140> US 60/385927
<141> 2002-06-04
<160> 24
<170> PatentIn version 3.2
<210> 1
<211> 31
<212> PRT
<213> Artificial
<220>
<223> Synthetic constructs
<220>
<221>
       MISC_FEATURE
       (1)..(1)
Xaa= L-histidine, D-histidine, desamino-histidine,
<222>
<223>
        2-amino-histidine, beta-hydroxy-
        histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha
        methyl-histidine
<220>
<221> MISC_FEATURE <222> (2)..(2)
<222> (2)..(2)
<223> Xaa= Ala, Gly, Val, Leu, Ile, Ser, or Thr
<220>
<221>
        MISC_FEATURE
<222>
        (6)..(6)
<223> Xaa= Phe, Trp, or Tyr
<220>
<221>
        MISC_FEATURE
<222> (10)..(10)
<223> Xaa= Val, Trp, Ile, Leu, Phe, or Tyr
 <220>
 <221> MISC_FEATURE
 <222>
        (12)..(12)
Xaa= Ser, Trp, Tyr, Phe, Lys, Ile, Leu, Val
 <223>
<220>
<221>
<222>
        MISC_FEATURE
        (13)..(13)
 <223> Xaa= Tyr, Trp, or Phe
 <220>
 <221>
<222>
        MISC_FEATURE
         (14)..(14)
 <223>
        Xaa= Leu, Phe, Tyr, or Trp
 <220>
 <221>
        MISC_FEATURE
       (16)..(16)
Xaa= Gly, Glu, Asp, Lys
 <222>
 <223>
```

```
<220>
        MISC_FEATURE
<221>
<222> (19)..(19)
<223> Xaa= Ala, Val, Ile, or Leu
<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> Xaa= Glu, Ile, or Ala
<220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> Xaa= Ala, or Glu
<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa= Val, or Ile
<220>
<221> MISC_FEATURE
<222> (31)..(31)
<223> Xaa= L-Cys, D-Cys, homocysteine, or penicillamine
 <400> 1
Xaa Xaa Glu Gly Thr Xaa Thr Ser Asp Xaa Ser Xaa Xaa Xaa Glu Xaa 1 10 15
 Gln Ala Xaa Lys Xaa Phe Ile Xaa Trp Leu Xaa Lys Gly Arg Xaa
 <210> 2
 <211>
<212>
          31
          PRT
 <213> Artificial
 <220>
 <223> Synthetic construct
 <220>
<221>
           MISC_FEATURE
  <222>
          (1)..(1)
Xaa= L-histidine, D-histidine, desamino-histidine,
2-amino-histidien, beta-hydroxy-
  <223>
           histidine, homohistidine, alpha-fluoromethyl-histidine, or
alpha-methyl-histidine
  <220>
  <221> MISC_FEATURE
          (2)..(2)
Xaa= Gly, Ala, Val, Leu, Ile, Ser or Thr
  <222>
  <223>
  <220>
  <221> MISC_FEATURE
<222> (10)..(10)
  <222> (10)..(10)
<223> Xaa = Val, Phe, Tyr, or Trp
  <220>
  <221> MISC_FEATURE
  <222> (12)..(12)
<223> Xaa = Ser, Tyr, Trp, Phe, Lys, Ile, Leu, or Val
```

x15642.ST25.txt

```
<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa = Gly, Clu, Asp, or Lys
<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu
<220>
<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa = Val or Ile
<220>
<221>
<222>
        MISC_FEATURE
         (31)..(31)
<223> Xaa = L-Cys, D-Cys, homocysteine, or penicillamine
<400> 2
Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Xaa Ser Xaa Tyr Leu G<u>l</u>u Xaa
Gln Ala Xaa Lys Glu Phe Ile Ala Trp Leu Xaa Lys Gly Arg Xaa
<210>
<211> 42
<212> PRT
 <213> Artificial
 <220>
<223> Synthetic construct
 <220>
         MISC_FEATURE
 <221>
 <222>
         (1)..(1)
         xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine, beta-hydroxy-
 <223>
         histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha-methyl-histidine
 <220>
 <221> MISC_FEATURE <222> (2)..(2)
        (2)..(2)
Xaa = Ala. Glv. Val. Leu. Ile. Ser. or Thr
 <223>
 <220>
<221>
<222>
         MISC_FEATURE
         (6)..(6)
 <223> Xaa = Phe, Trp, or Tyr
 <220>
 <221> MISC_FEATURE
 <222> (10)..(10)
<223> Xaa = Val, Trp, Ile, Leu, Phe, or Tyr
 <220>
  <221> MISC_FEATURE
          (12)..(12)
  <222>
  <223> Xaa = Ser, Trp, Tyr, Phe, Lys, Ile, Leu, Val
```

```
<220>
<221> MISC_FEATURE
<222> (13)..(13)
<223> Xaa = Tyr, Trp, or Phe
<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> Xaa = Leu, Phe, Tyr, or Trp
<220>
<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa = Gly, Glu, Asp, or Lys
<220>
<220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu
<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> Xaa = Glu, Ile, or Ala
<220>
<220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> Xaa = Ala or Glu
 <220>
 <221> MISC_FEATURE
 <222> (27)..(27)
<223> Xaa = Val or Ile
 <220>
 <221> MISC_FEATURE
 <222> (28)..(28)
<223> Xaa = Lys, Asp, Arg, or Glu
 <220>
 <221> MISC_FEATURE
 <222>
         (30)..(30)
 <223> Xaa = Gly, Pro, or Arg
 <220>
 <221> MISC_FEATURE
<222> (31)..(31)
 <223> Xaa = Gly, Pro, Ser, L-Cys, D-Cys, homocysteine, or penicillamine
 <220>
 <221> MISC_FEATURE
 <222> (32)..(32)
 <223> Xaa = Ser, Pro, His, L-Cys, D-Cys, homocysteine, penicillamine, NH2
 <220>
  <221> MISC_FEATURE
 is absent
  <220>
  <221> MISC_FEATURE
         (34)..(34)
  <222>
  <223> Xaa = Ser, Gly, L-Cys, D-Cys, homocysteine, penicillamine, NH2,
```

or is absent

```
<220>
<221> MISC_FEATURE
</210 MISC-PRIVATE
<222 (35)..(35)
</pre>

</
NH2, or is absent
<220>
<221> MISC_FEATURE
<222>
        (36)..(36)
<223> Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2,
         or is absent
<220>
        MISC_FEATURE
<221>
<222>
         (37)..(37)
         Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
<223>
         is absent
<220>
         MISC_FEATURE
<221>
<222>
         (38)..(38)
         Xaa = Pro, Ala, Arg, Lys, His, L-Cys, D-Dys, homocysteine, penicillamine, NH2 or
is absent
 <220>
 <221> MISC_FEATURE
         (39).(39)
Xaa = Ser, His, Pro, Lys, Arg, L-Cys, D-Cys, homocysteine,
penicilamine, NH2 or
 <222>
 is absent
 <220>
         MISC_FEATURE (40)..(40)
Xaa = His, Ser, Arg, Lys, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
 <221>
 <222>
 <223>
 is absent
 <220>
 <221>
         MISC_FEATURE
 <222>
        (41)..(41)
Xaa = His, Ser, Arg, Lys, L-Cys, D-Cys, homocysteine,
 <223>
          penicillamine, NH2 or
 is absent
 <220>
          MISC_FEATURE
 <221>
 <222>
          (42)..(42)
         Xaa = L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is absent
 <223>
 <400>
 Xaa Xaa Glu Gly Thr Xaa Thr Ser Asp Xaa Ser Xaa Xaa Xaa Glu Xaa
 Gln Ala Xaa Lys Xaa Phe Ile Xaa Trp Leu Xaa Xaa Gly Xaa Xaa Xaa Xaa
```

```
<210> 4
<211> 42
<212> PRT
<213> Artificial
<220>
<223> Synthetic construct
<220>
<221>
<222>
         MISC_FEATURE
         (1)..(1)
         Xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine, beta-hydroxy-
 <223>
         histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha-methyl-histidine
 <220>
 <<cu>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = Gly, Val, Leu, Ile, Ser, or Thr
 <220>
         MISC_FEATURE
 <221>
 <222>
          (10)...(10)
         xaa = Val, Trp, Ile, Leu, Phe, or Tyr
 <223>
 <220>
<221>
<222>
          MISC_FEATURE
         (16)..(16)
xaa = Gly, Glu, Asp, or Lys
 <223>
 <220>
<221>
         MISC_FEATURE
 <222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu
 <220>
         MISC_FEATURE
(27)..(27)
Xaa = Val or Ile
 <221>
  <222>
  <223>
  <220>
  <221> MISC_FEATURE
  <222> (28)..(28)
<223> Xaa = Lys, Asp, Arg, or Glu
  <220>
  <221>
          MISC_FEATURE
          (30)..(30)
Xaa = Gly, Pro, or Arg
  <222>
  <223>
  <220>
  <221>
<222>
          MISC_FEATURE
         (31)..(31)
Xaa = Gly, Pro, Ser, L-Cys, D-Cys, homocysteine, or penicillamine
  <223>
  <220>
<221>
          MISC_FEATURE
  <222>
           (32)..(32)
          Xaa = Ser, Pro, His, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is absent
  <223>
                                                 Page 6
```

```
<220>
<221> MISC_FEATURE
        (33)..(33)
<222>
<223> Xaa = Ser, Arg, Thr, Trp, Lys, L-Cys, D-Cys, homocysteine, penicillamine, NH2
or is absent
<220>
       MISC_FEATURE
<221>
<222> (34)..(34)
<223> Xaa = Ser, Gly, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
        is absent
<220>
</210
</pre>
<221> (35)..(35)

<223> Xaa = Ala, Asp, Arg, Glu, Lys, Gly, L-Cys, D-Cys, homocysteine,
penicillamine,
NH2, or is absent
 <220>
 <221> MISC_FEATURE
        (36) . . (36)
 <222>
 <223> Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
         is absent
 <220>
<221> MISC_FEATURE
 <222> (37)..(37)
 <223> Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2,
         or is absent
 <220>
 <221>
         MISC_FEATURE
(38)..(38)
 <222>
         Xaa = Pro, Ala, Arg, Lys, His, L-Cys, D-Cys, homocysteine, penicillamine, NH2
 <223>
 or is absent
  <220>
         MISC_FEATURE
  <221>
        (39)..(39)
Xaa = Ser, His, Pro, Lys, Arg, L-Cys, D-Cys, homocysteine, penicillamine, NH2
  <222>
  <223>
  or is absent
  <220>
  <221>
          MISC_FEATURE
  <222> (40) . (40)
         xaa = His, Ser, Arg, Lys, L-Cys,D-Cys, homocysteine, penicillamine, NH2, or
  is absent
  <220>
  <221>
         MISC_FEATURE
         (41). (41)
Xaa = His, Ser, Arg, Lys, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
  <222>
  <223>
  is absent
  <220>
```

X15642.ST25.txt

<221> MISC\_FEATURE

<222> (42)..(42)
<223> Xaa - L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is absent

<400> 4

Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Xaa Ser Ser Tyr Lys Glu Xaa

Gln Ala Xaa Lys Glu Phe Ile Ala Trp Leu Xaa Xaa Gly Xaa Xaa Xaa Xaa 30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

<210>

<211> 42 <212> PRT

2213> Artificial

<220> <223> Synthetic construct

<220> <221> MISC\_FEATURE

<222> (1)..(1)xaa = L-histidine, D-histidine, desamino-histidine, 2-amino-histidine, beta-hydroxy-<223>

> histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha-methyl-histidine

<220> <221> MISC\_FEATURE

<222> (2)..(2) Xaa = Gly, Val, Leu, Ile, Ser, or Thr <223>

<220> <221> MISC\_FEATURE

<222> (16)..(16) <223> Xaa = Gly, Glu, Asp, or Lys

<220> <221> MISC\_FEATURE

<222> (19)..(19) <223> Xaa = Ala, Val, Ile, or Leu

<220>

<220>
<221> MISC\_FEATURE
<222> (27)..(27)
<223> Xaa = Val or Ile

<220> MISC\_FEATURE <221>

(32)..(32) <222>  $\dot{\text{Xaa}} = \dot{\text{Ser}}, \text{ Pro, His, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is absent}$ 

<220> MISC\_FEATURE <221> <222>

(33)..(33) $\dot{x}aa=Ser$ , Arg, Thr, Trp, Lys, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is <223>

X15642.ST25.txt

```
absent
<220>
        MISC_FEATURE
<221>
      אבן...נידי.
Xaa = Ser, Gly, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
is absent
<222>
<223>
<220>
<221> MISC_FEATURE
<222>
<223>
        (35)..(35)
Xaa = Ala, Asp, Arg, Glu, Lys, Gly, L-Cys, D-Cys, homocysteine,
        penicillamine, NH2 or is absent
<220>
        MISC_FEATURE
<221>
<222>
         (36)..(36)
         Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
<223>
         is absent
<220>
<221>
<222>
         MISC_FEATURE
         (37)..(37)
         Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
         is absent
 <220>
 <221>
<222>
         MISC_FEATURE
         (38)..(38)
         Xaa = Pro, Ala, Arg, Lys, His, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is absent
 <223>
 <220>
 <221>
         MISC_FEATURE
         (39)..(39)

Xaa = Ser, His, Pro, Lys, Arg, L-Cys, D-Cys, homocysteine,

penicillamine, NH2 or is absent
 <222>
 <223>
 <220>
         MISC_FEATURE (40)..(40)
Xaa = His, Ser, Arg, Lys, L-Cys, D-Cys, homocysteine, penicillamine, NH2, or is absent
 <221>
 <222>
 <223>
 <220>
 <221>
         MISC_FEATURE
        (41)...(41)
Xaa = His, Ser, Arg, Lys, L-Cys, D-Cys, homocysteine, penicillamine, NHZ, or is absent
  <222>
  <223>
  <220>
  <221> MISC_FEATURE
          (42)..(42)
  <222>
          Xaa = L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is absent
  <223>
  <400> 5
  Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Lys Glu Xaa
  Gln Ala Xaa Lys Glu Phe Ile Ala Trp Leu Xaa Lys Gly Gly Pro Xaa
```

35 40

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

<210>

<220>

```
<211> 45
<212> PRT
<213> Artificial
<220>
<223> Synthetic construct
<220>
<221>
<222>
           MISC_FEATURE
           (1)..(1)
           (1)..(1)
Xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine, beta-hydroxy-histidine, homohistidine,
alpha-fluoromethyl-histidine, or alpha-methyl-histidine
<223>
<220>
           MISC_FEATURE ·
<221>
           (2)..(2)
Xaa = Ala, Gly, Val, Leu, Ile, Ser or Thr
<222>
<223>
 <220>
<221>
<222>
            MISC_FEATURE
            (6)..(6)
           Xaa = Phe. Trp. or Tyr
 <223>
 <220>
 <221>
<222>
            MISC_FEATURE
 <222> (10)..(10)
<223> Xaa = Val, Trp, Ile, Leu, Phe, or Tyr
 <220>
 <221> MISC_FEATURE <222> (12)..(12)
 <222> (12)..(12)
<223> Xaa = Ser, Trp, Tyr, Phe, Lys, Ile, Leu, Val
  <220>
 <220>
<221> MISC_FEATURE
<222> (13)..(13)
<223> Xaa = Tyr, Trp, or Phe
 <220>
 </2/>

</
  <220>
  <221> MISC_FEATURE
  <222> (16)..(16)
<223> Xaa = Gly, Glu, Asp, or Lys
  <220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> Xaa = Ala, val, Ile, or Leu
  <220>
  <221> MISC_FEATURE
  <222>
  <222> (21)..(21)
<223> Xaa = Glu, Ile, or Ala
  <220>
  <221>
<222>
              MISC_FEATURE
             (24)..(24)
Xaa = Ala, or Glu
   <223>
```

```
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa = Val or Ile
<220>
<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa = Lys, Asp, Arg, or Glu
<220>
<221> MISC_FEATURE
<222> (30)..(30)
<223> Xaa = Gly, pro, or Arg
 <220s
 <221> MISC_FEATURE
 <222> (31)..(31)
<223> Xaa = Gly, Pro, or Ser
 <220>
 <221> MISC_FEATURE
 <222> (32)..(32)
<223> Xaa = Ser, Pro, or His
  <220>
  <221> MISC_FEATURE
  <222> (33)..(33)
<223> Xaa = Ser, Arg, Thr, Trp, or Lys
  <220>
                   MISC_FEATURE
  <221>
  <222> (34)..(34)
  <223> xaa = Ser or Glv
  <220>
  <221> MISC_FEATURE
  <222> (35)..(35)
<223> Xaa = Ala, Asp, Arg, Glu, Lys, or GLy
   <220>
  <221>
<222>
                    MISC_FEATURE
                    (36)..(36)
                  Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2,
   <223>
                     or is absent
   <220>
   <221> MISC_FEATURE
   <222> (37)..(37)
<223> Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
                      is absent
    <220>
    <221> MISC_FEATURE

    (22) (38). (38)
    (28). (38)
    (28). (38). (38)
    (22). (38). (38). (38)
    (22). (38). (38). (38)
    (22). (38). (38). (38)
    (22). (38). (38). (38).
    (22). (38). (38). (38).
    (22). (38). (38). (38).
    (22). (38). (38). (38).
    (22). (38). (38). (38).
    (22). (38). (38). (38).
    (22). (38). (38). (38).
    (23). (38). (38). (38).
    (24). (38). (38). (38).
    (25). (38). (38). (38).
    (27). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38).
    (28). (38). (38). (38). (38).
    (28). (38). (38). (38). (38).
    (28). (38). (38). (38). (38).
    (28). (38). (38). (38). (38). (38).
    (28). (38). (38). (38). (38). (38). (38).
    (28). (38). (38). (38). (38). (38). (38). (38).

    <220>
    <221> MISC_FEATURE
    <222>
                      (39)..(39)
                  Xaa = Ser, His, Pro, Lys, Arg, Gly, L-Cys, D-Cys, homocysteine, penicillamine, NH2, or is absent
    <223>
    <220>
```

```
<220>
<221> MISC_FEATURE
<221 | MISCEPTION |
<222> (41)..(41)
<223 | Xaa = His, Ser, Arg, Lys, L-Cys, D-Cys, homocysteine,
penicillamine, NH2, or is absent</pre>
<220>
<221>
<222>
      MISC_FEATURE
       (42)..(42)
     xaa = Gly, His, L-Cys, D-Cys, homocysteine, penicillamine, NH2,
       or is absent
<220>
<221> MISC_FEATURE
<220>
<221> MISC_FEATURE
<2424 (44)..(44)
<222> Xaa = Ser, His, Ser-NHZ, His-
penicillamine, NHZ or is absent
                  His, Ser-NH2, His-NH2, L-Cys, D-Cys, homocysteine,
<220>
<221> MISC_FEATURE
<222>
       (45)..(45)
<223> Xaa = L-Cys, D-Cys, homocysteine, penicillamine, NH2 or is absent
<400> 6
Xaa Xaa Glu Gly Thr Xaa Thr Ser Asp Xaa Ser Xaa Xaa Xaa Glu Xaa
 Gln Ala Xaa Lys Xaa Phe Ile Xaa Trp Leu Xaa Xaa Gly Xaa Xaa Xaa 25 30
 <210> 7
 <211> 45
 <212> PRT
 <213> Artificial
 <220>
 <223> Synthetic construct
 <220>
 <221> MISC_FEATURE
 <222> (32)..(32)
 <223> Xaa = Ser, Pro, or His
 <220>
 <221> MISC_FEATURE
 <222> (33)..(33)
 <223> Xaa = Ser, Arg, Thr, Trp, or Lys
  <220>
 <221> MISC_FEATURE
  <222> (34)..(34)
  <223> Xaa = Ser or Glv
```

```
<220>
                 MISC_FEATURE
<221>
                   (35)..(35)
<222>
<223> Xaa = Ala, Asp, Arg, Glu, Lys, or Glv
<220>
<221> MISC_FEATURE
<222> (36)..(36)
 <223> Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
                   is absent
 <220>
 <221>
                   MISC_FEATURE
 <222>
                  (37)..(37)
 <223> Xaa = Pro, Ala, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
                   is absent
 <220>
 <221> MISC_FEATURE
                   (38)..(38)
Xaa = Pro, Ala, Arg, Lys, His, NH2, L-Cys, D-Cys, homocysteine,
 <222>
 <223>
                   penicillamine, NH2, or is absent
 <220>
 <221> MISC_FEATURE
 <222>
                    (39)..(39)
                   \dot{\text{Xaa}} = \dot{\text{Ser}}, \text{ His, Pro, Lys, Arg, Gly, L-Cys, D-Cys, homocysteine, penicillamine, NH2, or is absent
  <223>
  <220>
  <221> MISC_FEATURE
   <222> (40)..(40)
  <223> Xaa = His, Ser, Arg, Lys, Pro, Gly, L-Cys, D-Cys, homocysteine,
penicillamine, NH2, or is absent
   <220>
                     MISC_FEATURE
   <221>
                    (41)..(41)
Xaa = His, ser, Arg, Lys, L-Cys, D-Cys, homocysteine, penicillamine, NH2, or is absent
   <222>
   <223>
   <220>
<221>
                    MISC_FEATURE
                     (42)..(42)
Xaa = Gly, His, L-Cys, D-Cys, homocysteine, penicillamine, HN2,
   <222>
   <223>
                     or is absent
   <220>
                     MISC_FEATURE
   <221>
                     (43)..(43)
   <222>
                     Xaa = Pro, His, L-Cys, D-Cys, homocysteine, penicillamine, NH2 or
   <223>
                       is absent
    <220>
   <221>
<222>
                     MISC_FEATURE
                     (44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(44)...(4
    <223>
     <220>
    <221> MISC_FEATURE
     <222>
                     (45)..(45)
                     Xaa = L-Cys, D-Cys, homocysteine, penicillamine, NH2, or is
     <223>
                       absent
     <400> 7
     His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
                                                                                                        Page 13
```

```
X15642.ST25.txt
                                                                15
1
Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Gly Pro Xaa
<210>
<211>
        31
<212>
        PRT
<213>
        Artificial
<220>
<223> Synthetic construct
<220>
<221>
<222>
        MISC_FEATURE
         (1)..(1)
        xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine beta-hydroxy-
 <223>
         histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha-methyl-histidine
 <220>
        MISC_FEATURE
 <221>
 <222>
         (2)..(2)
Xaa = Ala. Glv. Val. Leu, Ile, Ser, or Thr
 <223>
 <220>
 <221>
<222>
<223>
        MISC_FEATURE
         (6)..(6)
xaa - Phe, Trp, or Tyr
 <220>
         MISC_FEATURE
 <221>
         (10)..(10)
 <222>
       xaa = val, Trp, Ile, Leu, Phe, or Tyr
 <223>
 <220>
<221>
<222>
<223>
         MISC_FEATURE
         (12)..(12)
         xaa = Ser, Trp, Tyr, Phe, Lys, Ile, Leu, Val
 <220>
 <221>
         MISC_FEATURE
 <222>
         (13)..(13)
xaa = Tyr, Trp, or Phe
 <223>
 <220>
 <221>
         MISC_FEATURE
  <222>
          (14)..(14)
  <223> Xaa = Leu, Phe, Tyr, or Trp
  <220>
<221>
         MISC_FEATURE
  <222> (16)..(16)
<223> Xaa = Gly, Glu, Asp, Lys
  <220>
```

MISC\_FEATURE

xaa = Ala, Val, Ile, or Leu

Page 14

(19)..(19)

<221> <222>

```
<220>
<221> MISC_FEATURE
<222>
        (21)..(21)
<223> Xaa = Glu, Ile, or Ala
<220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> Xaa = Ala or Glu
<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa = Val or Ile
<400> 8
Xaa Xaa Glu Gly Thr Xaa Thr Ser Asp Xaa Ser Xaa Xaa Xaa Glu Xaa
Gln Ala Xaa Lys Xaa Phe Ile Xaa Trp Leu Xaa Lys Gly Arg Lys
<210>
        31
<211>
<212>
         PRT
 <213> Artificial
 <220>
 <223> Synthetic construct
 <220>
<221>
<222>
<223>
         MISC_FEATURE
         (1) ...(1)
         xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine, beta-hydroxy-
         histidine, homohistidine, alpha-fluoromethyl-histidine, or
         alpha-methyl-histidine
 <220>
<221>
<222>
         MISC_FEATURE
        (2)..(2)
Xaa = Gly, Ala, Val, Leu, Ile, Ser, or Thr
 <223>
 <220>
 <221> MISC_FEATURE
 <222> (10)..(10)
<223> Xaa = Val, Phe, Tyr, or Trp
  <220>
  <221>
         MISC_FEATURE
  <222> (12)..(12)
  <223> Xaa = Ser, Tyr, Trp, Phe, Lys, Ile, Leu, or Val
  <220>
  <221> MISC_FEATURE
  <222> (16)..(16)
<223> Xaa = Gly, Glu, Asp, or Lys
  <220>
  <220>
<221> MISC_FEATURE
<222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu
```

## x15642.ST25.txt

```
<220>
<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa = Val or Ile
<400> 9
Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Xaa Ser Xaa Tyr Leu Glu Xaa
Gln Ala Xaa Lys Glu Phe Ile Ala Trp Leu Xaa Lys Gly Arg Lys
<210> 10
<211> 42
<212> PRT
<213> Artificial
<223> Synthetic construct
<220>
<221>
         MISC_FEATURE
 <222>
         (1)..(1)
         xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine, beta-hydroxy-
 <223>
         histidine, homohistidine, alpha-fluoromethyl-histidine. or
         alpha-methyl-histidine
 <220>
 <221> MISC_FEATURE
 <222> (2)..(2)
<223> Xaa = Ala, Gly, Val, Leu, Ile, Ser, or Thr
 <220>
 <221>
<222>
<223>
         MISC_FEATURE
        (6)..(6)
Xaa = Phe, Trp, or Tyr
 <220>
 <221> MISC_FEATURE
<222> (10)..(10)
 <223>
        Xaa = Val, Trp, Ile, Leu, Phe, or Tyr
 <220>
 <221>
<222>
<223>
         MISC_FEATURE
          (12)..(12)
        Xaa = Ser, Trp, Tyr, Phe, Lys, Ile, Leu, Val
  <220>
  <221> MISC_FEATURE
  <222> (13)..(13)
<223> Xaa = Tyr, Trp, or Phe
  <220>
  <221> MISC_FEATURE
  <222> (14)..(14)
<223> Xaa = Leu, Phe, Tyr, or Trp
  <220>
  <221> MISC_FEATURE
<222> (16)..(16)
  <223>
         Xaa = Gly, Glu, Asp, or Lys
                                               Page 16
```

#### x15642.ST25.txt

```
<220>
<22U>
<221> MISC_FEATURE
<222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu
<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> Xaa = Glu, Ile, or Ala
<220>
<220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> Xaa = Ala or Glu
 <220>
 <221> MISC_FEATURE
 <222> (27)..(27)
<223> Xaa = Val or Ile
 <220>
 <22U>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa = Lys, Asp, Arg, or Glu
 <220>
 <221> MISC_FEATURE
<222> (30)..(30)
<223> Xaa = Gly, Pro, or Arg
 <220>
 <221> MISC_FEATURE
 <222> (31)..(31)
<223> Xaa = Gly, Pro, Ser, or Lys
 <220>
 <22U>
<221> MISC_FEATURE
<222> (32)..(32)
<223> Xaa = Ser, Pro, His, Lys, NH2
  <220>
  <221> MISC_FEATURE
  <222> (33)..(33)
  <223> Xaa = Ser, Arg, Thr, Trp, Lys, NH2 or is absent
  <220>
  <221> MISC_FEATURE
  <222> (34)..(34)
<223> Xaa = Ser, Gly, Lys, NH2 or is absent
  <220>
  <221> MISC_FEATURE
  <222> (35)..(35)
<223> Xaa = Ala, Asp, Arg, Glu, Lys, Gly, NH2 or is absent
  <220>
  <221> MISC_FEATURE
  <222> (36)..(36)
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
  <220>
  <221> MISC_FEATURE
  <222> (37)..(37)
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
  <220>
  <221> MISC_FEATURE
```

```
X15642.ST25.txt
<222> (38)..(38)
<223> Xaa = Pro, Ala, Arg, Lys, His, NH2 or is absent
<220>
      MISC_FEATURE
<221>
<222> (39)..(39)
<223> Xaa = Ser. His. Pro. Lys, Arg, NH2 or is absent
<220>
<221> MISC_FEATURE
      (40)..(40)
<222>
<223> Xaa = His, Ser, Arg, Lys, NH2, or is absent
<220>
<221> MISC_FEATURE <222> (41)..(41)
<223> Xaa = His, Ser, Arg, Lys, NH2, or is absent
<220>
<221> MISC_FEATURE
       (42)..(42)
<222>
<223> Xaa = Lys, NH2, or is absent
<400> 10
Xaa Xaa Glu Gly Thr Xaa Thr Ser Asp Xaa Ser Xaa Xaa Xaa Glu Xaa
Gln Ala Xaa Lys Xaa Phe Ile Xaa Trp Leu Xaa Xaa Gly Xaa Xaa Xaa Xaa 30
<210> 11
<211> 42
 <212>
       PRT
 <213>
      Artificial
 <220>
 <223> Synthetic construct
 <220>
<221> MISC_FEATURE
 <222>
        (1)..(1)
      Xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine, beta-hydroxy-
 <223>
        histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha-methyl-histidine
 <220>
 <221> MISC_FEATURE
 <222> (2)..(2)
 <223> Xaa = Giy, Val, Leu, Ile, Ser, or Thr
 <220>
 <221> MISC_FEATURE
 <222> (10)..(10)
 <223> Xaa = Val, Trp, Ile, Leu, Phe, or Tyr
 <220>
 <221> MISC_FEATURE
 <222> (16)..(16)
```

x15642.ST25.txt <223> xaa = Glv. Glu. Asp. or Lys <220> <221> MISC\_FEATURE <222> (19)..(19) <223> Xaa = Ala, Val, Ile, or Leu <220> <221> MISC\_FEATURE <222> (27)..(27) <223> Xaa = Val or Ile <220> <221> MISC\_FEATURE <222> (28)..(28) <223> Xaa = Lys, Asp, Arg, or Glu <220> <221> MISC\_FEATURE <222> (30)..(30) <223> Xaa = Gly, Pro, or Arg <220> <220>
<221> MISC\_FEATURE
<222> (31)..(31)
<223> Xaa = Gly, Pro, Ser or Lys <220> <221> MISC\_FEATURE <222> (32)..(32)
<223> Xaa = Ser, Pro, His, Lys, NH2 or is absent <220> <220> <221> MISC\_FEATURE <222> (34)..(34) <223> Xaa = Ser, Gly, Lys, NH2 or is absent <220> <221> MISC\_FEATURE <222> <222> (35)..(35) <223> Xaa = Ala, Asp, Arg, Glu, Lys, Gly, NH2 or is absent <220> <221> MISC\_FEATURE <222> (36)..(36) <223> Xaa = Pro, Ala, Lys, NH2 or is absent <220> <221> MISC\_FEATURE <222> (37)..(37) <223> Xaa = Pro, Ala, Lys, NH2, or is absent <220> <221> MISC\_FEATURE <222> (38)..(38) <223> Xaa = Pro, Ala, Arg, Lys, His, NH2 or is absent <220> <221> MISC\_FEATURE <222> (39)..(39) Xaa = Ser, His, Pro, Lys, Arg, NH2 or is absent

Page 19

<220>

```
x15642.ST25.txt
<221> MISC_FEATURE
<222> (40)..(40)
<223> Xaa = His, Ser, Arg, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (41)..(41)
<223> Xaa = His, Ser, Arg, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (42)..(42)
<223> Xaa = Lys, NH2, or is absent
<400> 11
Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Xaa Ser Ser Tyr Lys Glu Xaa
Gln Ala Xaa Lys Glu Phe Ile Ala Trp Leu Xaa Xaa Gly Xaa Xaa Xaa Xaa 30
<210> 12
<211> 42
 <212>
        PRT
        Artificial
 <213>
 <220>
 <223> Synthetic construct
 <220>
 <221> MISC_FEATURE
 <222>
         (1)..(1)
         (1)...(1)
Xaa = L-histidine, D-histidine, desamino-histidine,
2-amino-histidine, beta-hydroxy-histidine, homohistidine,
alpha-fluoromethyl-histidine, or alpha-methyl-histidine
 <223>
 <220>
<221> MISC_FEATURE
 <222>
         (2)..(2)
  <223> Xaa = Gly, Val, Leu, Ile, Ser, or Thr
 <220>
 <221> MISC_FEATURE
 <222> (16)..(16)
<223> Xaa = Gly, Glu, Asp, or Lys
  <220>
  <221> MISC_FEATURE
  <222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu
  <220>
  <221> MISC_FEATURE
  <222> (27)..(27)
<223> Xaa =Val or Ile
  <220>
  <221> MISC_FEATURE
  <222>
          (32)..(32)
  <223> Xaa= Ser, Pro, His, Lys, NH2 or is absent
                                              Page 20
```

```
<220>
<221> MISC_FEATURE
<222> (33)..(33)
<223> Xaa = Ser, Arg, Thr, Trp, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (34)..(34)
<223> Xaa = Ser, Gly, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (35)..(35)
<223> Xaa = Ala, Asp, Arg, Glu, Lys, Gly, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (36)..(36)
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
 <222>
       (37)..(37)
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE <222> (38)..(38)
       Xaa = Pro, Ala, Arg, Lys, His, NH2 or is absent
 <220>
        MISC_FEATURE
 <221>
 <222>
        (39)..(39)
 <223>
       Xaa = Ser, His, Pro, Lys, Arg, NH2 or is absent
 <220>
 <221> MISC_FEATURE
<222> (40)..(40)
 <222> (40)..(40)
<223> Xaa = His, Ser, Arg, Lys, NH2, or is absent
 <220>
 <221> MISC_FEATURE
 <222> (41)..(41)
<223> Xaa = His, Ser, Arg, Lys, NH2 or is absent
 <220>
 <221> MISC_FEATURE
 <222>
        (42)..(42)
 <223> Xaa = Lys, NH2, or is absent
 <400> 12
 Xaa Xaa Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Lys Glu Xaa
 Gln Ala Xaa Lys Glu Phe Ile Ala Trp Leu Xaa Lys Gly Gly Pro Xaa
 <210> 13
  <211>
  <212> PRT
```

x15642.ST25.txt <213> Artificial <220> <223> Synthetic construct <220> <221> <222> MISC\_FEATURE (1)..(1)(L)..(L) Xaa = L-histidine, D-histidine, desamino-histidine, Z-amino-histidine, beta-hydroxy-histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha-methyl-histidine <223> <220> MISC\_FEATURE <221> (2)..(2) Xaa = Ala, Gly, Val, Leu, Ile, Ser, or Thr <222> <223> <220> <221> MISC\_FEATURE <222> (6)..(6) <222> (6)..(6) <223> Xaa = Phe, Trp or Tyr <220> <221> <222> MISC\_FEATURE (10)..(10) Xaa = Val, Trp, Ile, Leu, Phe, or Tyr <223> <220> <221> MISC\_FEATURE <222> (12)..(12) Xaa = Ser, Trp, Tyr, Phe, Lys, Ile, Leu, Val <223> <220> <220>
<221> MISC\_FEATURE
<222> (13)..(13)
<223> Xaa = Tyr, Trp, or Phe <220> <221> MISC\_FEATURE <222> (14)..(14) <223> Xaa = Leu, Phe, Tyr, or Trp <220> <221> MISC\_FEATURE <222> (16)..(16) <223> Xaa = Gly, Glu, Asp, or Lys <220> <22U>
<221> MISC\_FEATURE
<222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu <220> MISC\_FEATURE <221> <222> (21)..(21) Xaa = Glu, Ile, or Ala <223> <220> <221> MISC\_FEATURE <222> (24)..(24) <223> Xaa = Ala or Glu <220> <221> MISC\_FEATURE

<222> (27)..(27) <223> Xaa = Val or Ile

X15642.ST25.txt

```
<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa = Lys, Asp, Arg, or Glu
<220>
<221> MISC_FEATURE
<222> (30)..(30)
<223> Xaa = Gly, Pro, or Arg
<220>
<220>
<221> MISC_FEATURE
<222> (31)..(31)
<223> Xaa = Gly, Pro, or Ser
<220>
<220>
<221> MISC_FEATURE
<222> (32)..(32)
<223> Xaa = Ser, Pro, or His
<220>
<22U>
<221> MISC_FEATURE
<222> (33)..(33)
<223> Xaa = Ser, Arg, Thr, Trp, or Lys
<220>
<220>
<221> MISC_FEATURE
<222> (34)..(34)
<223> Xaa = Ser, Gly
 <220>
 <221> MISC_FEATURE
 <222> (35)..(35)
<223> Xaa = Ala, Asp, Arg, Glu, Lys, or Gly
 <220>
 <221> MISC_FEATURE
 <222> (36)..(36)
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
 <220>
 <221> MISC_FEATURE
 <222> (37)..(37)
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
 <220>
 <221> MISC_FEATURE
 <222> (38)..(38)
<223> Xaa = Pro, Ala, Arg, Lys, His, NH2 or is absent
 <220>
 <2cu>
<221> MISC_FEATURE
<222> (39)..(39)
<223> Xaa = Ser, His, Pro, Lys, Arg, NH2 or is absent
 <220>
 <221> MISC_FEATURE
 <222> (40)..(40)
<223> Xaa = His, Ser, Arg, Lys, NH2 or is absent
  <220>
  <221> MISC_FEATURE
  <222>
           (41)..(41)
  <223> Xaa = His, Ser, Arg, Lys, NH2, or is absent
  <220>
  <221> MISC_FEATURE
  <222> (42)..(42)
```

```
x15642.ST25.txt
<223> Xaa = Lvs. NH2, or is absent
<220>
<221> MISC_FEATURE
<222> (43)..(43)
<223> Xaa = Pro, His, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (44)..(44)
<223> Xaa = Ser, His, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (45)..(45)
<223> Xaa = Lys, NH2 or is absent
<400> 13
Xaa Xaa Glu Gly Thr Xaa Thr Ser Asp Xaa Ser Xaa Xaa Xaa Glu Xaa
Gln Ala Xaa Lys Xaa Phe Ile Xaa Trp Leu Xaa Xaa Gly Xaa Xaa Xaa
<210> 14
<211> 45
<212> PRT
<213> Artificial
<220>
<223> Synthetic construct
<220>
 <221> MISC_FEATURE
 <222> (32)..(32)
 <223> Xaa = Ser, Pro, or His
 <220>
 <22U>
<22U> MISC_FEATURE
<222> (33)..(33)
<223> Xaa = Ser, Arg, Thr, Trp, or Lys
 <220>
 <221> MISC_FEATURE
<222> (34)..(34)
<223> Xaa = Ser, or Gly
 <220>
<221> MISC_FEATURE
 <222> (35)..(35)
<223> xaa = Ala, Asp, Arg, Glu, Lys, or Gly
 <220>
 <221> MISC_FEATURE
 <222> (36)..(36)
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
 <220>
 <221> MISC_FEATURE
 <222> (37)..(37)
```

```
X15642.ST25.tXt
<223> Xaa = Pro, Ala, Lys, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (38)..(38)
<223> Xaa = Pro, Ala, Arg, Lys, His, NH2 or is absent
<220>
<221> MISC_FEATURE
<222> (39)..(39)
<223> Xaa = Ser, His, Pro, Lys, Arg, NH2 or is absent
<220>
<22U> MISC_FEATURE
<222> (40)..(40)
<223> Xaa = His, Ser, Arg, Lys, NH2 or is absent
<220>
<22U>
<221> MISC_FEATURE
<222> (41)..(41)
<223> Xaa = His, Ser, Arg, Lys, NH2 or is absent
<220>
<220>
<221> MISC_FEATURE
<222> (42)..(42)
<223> Xaa = Lys, NH2, or is absent
<220>
<22U>
<221> MISC_FEATURE
<222> (43)..(43)
<223> Xaa = Pro, His, Lys, NH2 or is absent
<220>

<221> MISC_FEATURE

<222> (44)..(44)

<223> Xaa = Ser, His, Lys, NH2 or is absent
<220>
 <221> MISC_FEATURE
<222> (45)..(45)
<223> Xaa = Lys, NH2 or is absent
 <400> 14
 His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
 Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Gly Pro Xaa
 <210> 15
 <211> 31
<212> PRT
 <213> Artificial
 <220>
 <223> Synthetic construct
 <220>
 <221> MISC_FEATURE
 <222> (1)..(1)
```

```
X15642.ST25.txt
<223> Xaa = L-histidine, D-histidine, desamino-histidine,
         2-amino-histidine, beta-hydroxy-
         histidine, homohistidine, alpha-fluoromethyl-histidine, or alpha-methyl-histidine
<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa = Ala, Gly, Val, Leu, Ile, Ser orThr
<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa = Phe. Trp. Tvr
<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa = Val, Trp, Ile, Leu, Phe, or Tyr
<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa = Ser, Trp, Tyr, Phe, Lys, Ile, Leu, Val
<220>
<220>
<221> MISC_FEATURE
<222> (13)..(13)
<223> Xaa = Tyr, Trp, or Phe
<220>
<221> MISC_FEATURE
 <222> (14)..(14)
 <223> Xaa = Leu, Phe, Tyr, or Trp
 <220>
 <221> MISC_FEATURE
 <222> (16)..(16)
<223> Xaa = Gly, Glu, Asp, Lys
 <220>
 <221> MISC_FEATURE
 <222> (19)..(19)
<223> Xaa = Ala, Val, Ile, or Leu
 <220>
          MISC_FEATURE
 <221>
 <222> (21)..(21)
<223> Xaa = Glu, Ile, or Ala
 <220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> Xaa = Ala or
          (24)..(24)
Xaa = Ala or Glu
 <220>
 <221>
          MISC_FEATURE
(27)..(27)
 <222>
 <223>
          Xaa = Val or Ile
 <220>
 <221>
          MISC_FEATURE
 <222>
          (31)..(31)
Xaa = Gly, His, Lys, or NH2 or is absent
 <223>
```

<400> 15

```
X15642.ST25.txt
Xaa Xaa Glu Gly Thr Xaa Thr Ser Asp Xaa Ser Xaa Xaa Xaa Glu Xaa
Gln Ala Xaa Lys Xaa Phe Ile Xaa Trp Leu Xaa Lys Gly Arg Xaa
      16
31
PRT
<210>
<211>
<212>
       Artificial
<220>
<223> synthetic construct
<400> 16
His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg Gly
<210> 17
<211> 39
<212> PRT
<213> Arti
       Artificial
<220>
<223> Synthetic construct
<400> 17
His Val Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Glu
Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Ile Lys Gly Gly Pro Ser
Ser Gly Ala Pro Pro Pro Cys
<210> 18
<211> 39
<212> PRT
<213> Artificial
 <220>
<223> Synthetic construct
 <220>
<221>
<222>
         MOD_RES
         (39)...(39)
2,2'-dithiolbis(5-dinitropyridine) is attached to the thiol of
Cys at position 39
 <400> 18
```

His Val Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Glu 10 15

# X15642.ST25.txt

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Ile Lys Gly Gly Pro Ser

Ser Gly Ala Pro Pro Pro Cys

<210>

<211> 32 <212> PRT

<213> Artificial

<220> <223> Synthetic construct

<400> 19

His Val Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Glu

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Ile Lys Gly Arg Gly Cys

<210> 20 <211> 32 <212> PRT <213> Artificial

<220> <223> Synthetic construct

<220>

<222> (32)..(32) <223> S-sulfonate (SSO3) is attached to the thiol of Cys at position 32

His Val Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Glu

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Ile Lys Gly Arg Gly Cys

<210> 21 <211> 32

<211> 32 <212> PRT <213> Artificial

<220> <223> Synthetic construct

His Val Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Glu 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Ile Lys Gly Arg Gly Lys

# X15642.ST25.txt

```
<210>
         22
        32
<211>
<212>
        PRT
        Artificial
<213>
<220>
<223> Synthetic construct
<220>
       MOD_RES
(32)..(32)
[3-(2-pyridy|dithio)propanamide]amide is attached to Lys at position 32
<221>
<222>
<400> 22
His Val Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Glu 1 10 15
Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Ile Lys Gly Arg Gly Lys \frac{25}{20}
<210> 23
<211> 39
<212> PRT
<213> ""
         Heloderma suspectum
 <220>
<221> MISC_FEATURE
<222> (1)..(39)
<223> Exendin-3
 <400> 23
His Ser Asp Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu 1 15
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
 Ser Gly Ala Pro Pro Pro Ser
 <210>
         24
39
 <211> 39
<212> PRT
         Heloderma suspectum
 <220>
 <221> MISC_FEATURE
<222> (1)..(39)
<223> Exendin-4
 <400> 24
 His Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu 1 15
```

Sloed2.5T25.txt
Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 30

Ser Gly Ala Pro Pro Pro Ser